

SEQUENCE LISTING

<110> Bristol-Myers Squibb Company

<120> IDENTIFICATION AND MODULATION OF A G-PROTEIN COUPLED RECEPTOR (GPCR), RAI3, ASSOCIATED WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) AND NF-kB AND E-SELECTIN REGULATION

<130> D0251 NP

<150> U.S. 60/390,850

<151> 2002-06-20

<150> U.S. 60/407,006

<151> 2002-08-29

<160> 98

<170> PatentIn version 3.2

<210> 1

<211> 14

<212> PRT

<213> Homo sapiens

<400> 1

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1 5 10

<210> 2

<211> 2456

<212> DNA

<213> Homo sapiens

<400> 2

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<210> 3

<211> 357

<212> PRT

<213> Homo sapiens

<400> 3

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Tyr Tyr Arg Leu Cys Asp Lys Ala Glu Ala Trp Gly Ile Val Leu Glu
20 25 30

Thr Val Ala Thr Ala Gly Val Val Thr Ser Val Ala Phe Met Leu Thr
35 40 45

Leu Pro Ile Leu Val Cys Lys Val Gln Asp Ser Asn Arg Arg Lys Met
50 55 60

Leu Pro Thr Gln Phe Leu Phe Leu Leu Gly Val Leu Gly Ile Phe Gly
65 70 75 80

Leu Thr Phe Ala Phe Ile Ile Gly Leu Asp Gly Ser Thr Gly Pro Thr
85 90 95

Arg Phe Phe Leu Phe Gly Ile Leu Phe Ser Ile Cys Phe Ser Cys Leu
100 105 110

Leu Ala His Ala Val Ser Leu Thr Lys Leu Val Arg Gly Arg Lys Pro
115 120 125

Leu Ser Leu Leu Val Ile Leu Gly Leu Ala Val Gly Phe Ser Leu Val
130 135 140

Gln Asp Val Ile Ala Ile Glu Tyr Ile Val Leu Thr Met Asn Arg Thr
145 150 155 160

Asn Val Asn Val Phe Ser Glu Leu Ser Ala Pro Arg Arg Asn Glu Asp
165 170 175

Phe Val Leu Leu Leu Thr Tyr Val Leu Phe Leu Met Ala Leu Thr Phe
180 185 190

Leu Met Ser Ser Phe Thr Phe Cys Gly Ser Phe Thr Gly Trp Lys Arg
195 200 205

His Gly Ala His Ile Tyr Leu Thr Met Leu Leu Ser Ile Ala Ile Trp
210 215 220

Val Ala Trp Ile Thr Leu Leu Met Leu Pro Asp Phe Asp Arg Arg Trp
225 230 235 240

Asp Asp Thr Ile Leu Ser Ser Ala Leu Ala Ala Asn Gly Trp Val Phe
245 250 255

Leu Leu Ala Tyr Val Ser Pro Glu Phe Trp Leu Leu Thr Lys Gln Arg
260 265 270

Asn Pro Met Asp Tyr Pro Val Glu Asp Ala Phe Cys Lys Pro Gln Leu
275 280 285

Val Lys Lys Ser Tyr Gly Val Glu Asn Arg Ala Tyr Ser Gln Glu Glu
290 295 300

Ile Thr Gln Gly Phe Glu Glu Thr Gly Asp Thr Leu Tyr Ala Pro Tyr
305 310 315 320

Ser Thr His Phe Gln Leu Gln Asn Gln Pro Pro Gln Lys Glu Phe Ser
325 330 335

Ile Pro Arg Ala His Ala Trp Pro Ser Pro Tyr Lys Asp Tyr Glu Val
340 345 350

Lys Lys Glu Gly Ser
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<210> 4
<211> 345
<212> PRT
<213> Homo sapiens

<400> 4

Met Tyr Lys Asp Cys Ile Glu Ser Thr Gly Asp Tyr Phe Leu Leu Cys
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Asp Ala Glu Gly Pro Trp Gly Ile Ile Leu Glu Ser Leu Ala Ile Leu
 20 25 30

Gly Ile Val Val Thr Ile Leu Leu Leu Ala Phe Leu Phe Leu Met
 35 40 45

Arg Lys Ile Gln Asp Cys Ser Gln Trp Asn Val Leu Pro Thr Gln Leu
 50 55 60

Leu Phe Leu Leu Ser Val Leu Gly Leu Phe Gly Leu Ala Phe Ala Phe
 65 70 75 80

Ile Ile Glu Leu Asn Gln Gln Thr Ala Pro Val Arg Tyr Phe Leu Phe
 85 90 95

Gly Val Leu Phe Ala Leu Cys Phe Ser Cys Leu Leu Ala His Ala Ser
 100 105 110

Asn Leu Val Lys Leu Val Arg Gly Cys Val Ser Phe Ser Trp Thr Thr
 115 120 125

Ile Leu Cys Ile Ala Ile Gly Cys Ser Leu Leu Gln Ile Ile Ile Ala
 130 135 140

Thr Glu Tyr Val Thr Leu Ile Met Thr Arg Gly Met Met Phe Val Asn
 145 150 155 160

Met Thr Pro Cys Gln Leu Asn Val Asp Phe Val Val Leu Leu Val Tyr
 165 170 175

Val Leu Phe Leu Met Ala Leu Thr Phe Phe Val Ser Lys Ala Thr Phe
 180 185 190

Cys Gly Pro Cys Glu Asn Trp Lys Gln His Gly Arg Leu Ile Phe Ile
 195 200 205

Thr Val Leu Phe Ser Ile Ile Ile Trp Val Val Trp Ile Ser Met Leu
 210 215 220

Leu Arg Gly Asn Pro Gln Phe Gln Arg Gln Pro Gln Trp Asp Asp Pro
 225 230 235 240

Val Val Cys Ile Ala Leu Val Thr Asn Ala Trp Val Phe Leu Leu Leu
245 250 255

Tyr Ile Val Pro Glu Leu Cys Ile Leu Tyr Arg Ser Cys Arg Gln Glu
260 265 270

Cys Pro Leu Gln Gly Asn Ala Cys Pro Val Thr Ala Tyr Gln His Ser
275 280 285

Phe Gln Val Glu Asn Gln Glu Leu Ser Arg Ala Arg Asp Ser Asp Gly
290 295 300

Ala Glu Glu Asp Val Ala Leu Thr Ser Tyr Gly Thr Pro Ile Gln Pro
305 310 315 320

Gln Thr Val Asp Pro Thr Gln Glu Cys Phe Ile Pro Gln Ala Lys Leu
325 330 335

Ser Pro Gln Gln Asp Ala Gly Gly Val
340 345

<210> 5
<211> 300
<212> PRT
<213> Mus musculus

<400> 5

Met Tyr Glu Asp Cys Val Lys Ser Thr Glu Asp Tyr Tyr Leu Phe Cys
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Asp Asn Glu Gly Pro Trp Ala Ile Val Leu Glu Ser Leu Ala Val Ile
20 25 30

Gly Ile Val Val Thr Ile Leu Leu Leu Leu Ala Phe Leu Phe Leu Met
35 40 45

Arg Lys Val Gln Asp Cys Ser Gln Trp Asn Val Leu Pro Thr Gln Phe
50 55 60

Leu Phe Leu Leu Ala Val Leu Gly Leu Phe Gly Leu Thr Phe Ala Phe
65 70 75 80

Ile Ile Gln Leu Asn His Gln Thr Ala Pro Val Arg Tyr Phe Leu Phe

85

90

95

Gly Val Leu Phe Ala Ile Cys Phe Ser Cys Leu Leu Ala His Ala Ser
 100 105 110

Asn Leu Val Lys Leu Val Arg Gly Arg Val Ser Phe Cys Trp Thr Thr
 115 120 125

Ile Leu Phe Ile Ala Ile Gly Val Ser Leu Leu Gln Thr Ile Ile Ala
 130 135 140

Ile Glu Tyr Val Thr Leu Ile Met Thr Arg Gly Leu Met Phe Glu His
 145 150 155 160

Met Thr Pro Tyr Gln Leu Asn Val Asp Phe Val Cys Leu Leu Ile Tyr
 165 170 175

Val Leu Phe Leu Met Ala Leu Thr Phe Phe Val Ser Lys Ala Thr Phe
 180 185 190

Cys Gly Pro Cys Glu Asn Trp Lys Gln His Gly Arg Leu Ile Phe Ala
 195 200 205

Thr Val Leu Val Ser Ile Ile Ile Trp Val Val Trp Ile Ser Met Leu
 210 215 220

Leu Arg Gly Asn Pro Gln Leu Gln Arg Gln Pro His Trp Asp Asp Ala
 225 230 235 240

Val Ile Cys Ile Gly Leu Val Thr Asn Ala Trp Val Phe Leu Leu Ile
 245 250 255

Tyr Ile Ile Pro Glu Leu Ser Ile Leu Tyr Arg Ser Cys Arg Gln Glu
 260 265 270

Cys Pro Thr Gln Gly Asn Val Cys Gln Val Pro Val Tyr Gln Arg Ser
 275 280 285

Phe Arg Met Asp Thr Gln Glu Pro Thr Arg Glu Cys
 290 295 300

<210> 6

<211> 403

<212> PRT
<213> Homo sapiens

<400> 6

Met Phe Val Ala Ser Glu Arg Lys Met Arg Ala His Gln Val Leu Thr
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Phe Leu Leu Leu Phe Val Ile Thr Ser Val Ala Ser Glu Asn Ala Ser
20 25 30

Thr Ser Arg Gly Cys Gly Leu Asp Leu Leu Pro Gln Tyr Val Ser Leu
35 40 45

Cys Asp Leu Asp Ala Ile Trp Gly Ile Val Val Glu Ala Val Ala Gly
50 55 60

Ala Gly Ala Leu Ile Thr Leu Leu Leu Met Leu Ile Leu Leu Val Arg
65 70 75 80

Leu Pro Phe Ile Lys Glu Lys Glu Lys Lys Ser Pro Val Gly Leu His
85 90 95

Phe Leu Phe Leu Leu Gly Thr Leu Gly Leu Phe Gly Leu Thr Phe Ala
100 105 110

Phe Ile Ile Gln Glu Asp Glu Thr Ile Cys Ser Val Arg Arg Phe Leu
115 120 125

Trp Gly Val Leu Phe Ala Leu Cys Phe Ser Cys Leu Leu Ser Gln Ala
130 135 140

Trp Arg Val Arg Arg Leu Val Arg His Gly Thr Gly Pro Ala Gly Trp
145 150 155 160

Gln Leu Val Gly Leu Ala Leu Cys Leu Met Leu Val Gln Val Ile Ile
165 170 175

Ala Val Glu Trp Leu Val Leu Thr Val Leu Arg Asp Thr Arg Pro Ala
180 185 190

Cys Ala Tyr Glu Pro Met Asp Phe Val Met Ala Leu Ile Tyr Asp Met
195 200 205

Val Leu Leu Val Val Thr Leu Gly Leu Ala Leu Phe Thr Leu Cys Gly
 210 215 220

Lys Phe Lys Arg Trp Lys Leu Asn Gly Ala Phe Leu Leu Ile Thr Ala
 225 230 235 240

Phe Leu Ser Val Leu Ile Trp Val Ala Trp Met Thr Met Tyr Leu Phe
 245 250 255

Gly Asn Val Lys Leu Gln Gln Gly Asp Ala Trp Asn Asp Pro Thr Leu
 260 265 270

Ala Ile Thr Leu Ala Ala Ser Gly Trp Val Phe Val Ile Phe His Ala
 275 280 285

Ile Pro Glu Ile His Cys Thr Leu Leu Pro Ala Leu Gln Glu Asn Thr
 290 295 300

Pro Asn Tyr Phe Asp Thr Ser Gln Pro Arg Met Arg Glu Thr Ala Phe
 305 310 315 320

Glu Glu Asp Val Gln Leu Pro Arg Ala Tyr Met Glu Asn Lys Ala Phe
 325 330 335

Ser Met Asp Glu His Asn Ala Ala Leu Arg Thr Ala Gly Phe Pro Asn
 340 345 350

Gly Ser Leu Gly Lys Arg Pro Ser Gly Ser Leu Gly Lys Arg Pro Ser
 355 360 365

Ala Pro Phe Arg Ser Asn Val Tyr Gln Pro Thr Glu Met Ala Val Val
 370 375 380

Leu Asn Gly Gly Thr Ile Pro Thr Ala Pro Pro Ser His Thr Gly Arg
 385 390 395 400

His Leu Trp

<210> 7
 <211> 498
 <212> PRT
 <213> Homo sapiens

<400> 7

Met Phe Val Ala Ser Glu Arg Lys Met Arg Ala His Gln Val Leu Thr
1 5 10 15

Phe Leu Leu Leu Phe Val Ile Thr Ser Val Ala Ser Glu Asn Ala Ser
20 25 30

Thr Ser Arg Gly Cys Gly Leu Asp Leu Leu Pro Gln Tyr Val Ser Leu
35 40 45

Cys Asp Leu Asp Ala Ile Trp Gly Ile Met Ala Ile His Lys Ala Leu
50 55 60

Val Met Cys Leu Gly Leu Pro Leu Phe Leu Phe Pro Gly Ala Trp Ala
65 70 75 80

Gln Gly His Val Pro Pro Gly Cys Ser Gln Gly Leu Asn Pro Leu Tyr
85 90 95

Tyr Asn Leu Cys Asp Arg Ser Gly Ala Trp Gly Ile Val Leu Glu Ala
100 105 110

Val Ala Gly Ala Gly Ile Val Thr Thr Phe Val Leu Thr Ile Ile Leu
115 120 125

Val Ala Ser Leu Pro Phe Val Gln Asp Thr Lys Lys Arg Ser Leu Leu
130 135 140

Gly Thr Gln Val Phe Phe Leu Leu Gly Thr Leu Gly Leu Phe Cys Leu
145 150 155 160

Val Phe Ala Cys Val Val Lys Pro Asp Phe Ser Thr Cys Ala Ser Arg
165 170 175

Arg Phe Leu Phe Gly Val Leu Phe Ala Ile Cys Phe Ser Cys Leu Ala
180 185 190

Ala His Val Phe Ala Leu Asn Phe Leu Ala Arg Lys Asn His Gly Pro
195 200 205

Arg Gly Trp Val Ile Phe Thr Val Ala Leu Leu Leu Thr Leu Val Glu
210 215 220

Val Ile Ile Asn Thr Glu Trp Leu Ile Ile Thr Leu Val Arg Gly Ser
 225 230 235 240

Gly Glu Gly Gly Pro Gln Gly Asn Ser Ser Ala Gly Trp Ala Val Ala
 245 250 255

Ser Pro Cys Ala Val Ala Asn Met Asp Phe Val Met Ala Leu Ile Tyr
 260 265 270

Val Met Leu Leu Leu Leu Gly Ala Phe Leu Gly Ala Trp Pro Ala Leu
 275 280 285

Cys Gly Arg Tyr Lys Arg Trp Arg Lys His Gly Val Phe Val Leu Leu
 290 295 300

Thr Thr Ala Thr Ser Val Ala Ile Trp Val Val Trp Ile Val Met Tyr
 305 310 315 320

Thr Tyr Gly Asn Lys Gln His Asn Ser Pro Thr Trp Asp Asp Pro Thr
 325 330 335

Leu Ala Ile Ala Leu Ala Ala Asn Ala Trp Ala Phe Val Leu Phe Tyr
 340 345 350

Val Ile Pro Glu Val Ser Gln Val Thr Lys Ser Ser Pro Glu Gln Ser
 355 360 365

Tyr Gln Gly Asp Met Tyr Pro Thr Arg Gly Val Gly Tyr Glu Thr Ile
 370 375 380

Leu Lys Glu Gln Lys Gly Gln Ser Met Phe Val Glu Asn Lys Ala Phe
 385 390 395 400

Ser Met Asp Glu Pro Val Ala Ala Lys Arg Pro Val Ser Pro Tyr Ser
 405 410 415

Gly Tyr Asn Gly Gln Leu Leu Thr Ser Val Tyr Gln Pro Thr Glu Met
 420 425 430

Ala Leu Met His Lys Val Pro Ser Glu Gly Ala Tyr Asp Ile Ile Leu
 435 440 445

Pro Arg Ala Thr Ala Asn Ser Gln Val Met Gly Ser Ala Asn Ser Thr
 450 455 460

Leu Arg Ala Glu Asp Met Tyr Ser Ala Gln Ser His Gln Ala Ala Thr
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Pro Pro Lys Asp Gly Lys Asn Ser Gln Val Phe Arg Asn Pro Tyr Val
 485 490 495

Trp Asp

<210> 8
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 <212> PRT
 <213> Homo sapiens

<400> 8

Met Ala Thr Thr Val Pro Asp Gly Cys Arg Asn Gly Leu Lys Ser Lys
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Tyr Tyr Arg Leu Cys Asp Lys Ala Glu Ala Trp Gly Ile Val Leu Glu
 20 25 30

Thr Val Ala Thr Ala Gly Val Val Thr Ser Val Ala Phe Met Leu Thr
 35 40 45

Leu Pro Ile Leu Val Cys Lys Val Gln Asp Ser Asn Arg Arg Lys Met
 50 55 60

Leu Pro Thr Gln Phe Leu Phe Leu Leu Gly Val Leu Gly Ile Phe Gly
 65 70 75 80

Leu Thr Phe Ala Phe Ile Ile Gly Leu Asp Gly Ser Thr Gly Pro Thr
 85 90 95

Arg Phe Phe Leu Phe Gly Ile Leu Phe Ser Ile Cys Phe Ser Cys Leu
 100 105 110

Leu Ala His Ala Val Gly Leu Thr Lys Leu Val Arg Gly Arg Lys Pro
 115 120 125

Leu Ser Leu Leu Val Ile Leu Gly Leu Ala Val Gly Phe Ser Leu Val
 130 135 140

Gln Asp Val Ile Ala Ile Glu Tyr Ile Val Leu Thr Met Asn Arg Thr
 145 150 155 160

Asn Val Asn Val Phe Ser Glu Leu Ser Ala Pro Arg Arg Asn Glu Asp
 165 170 175

Phe Val Leu Leu Leu Thr Tyr Val Leu Phe Leu Met Ala Leu Thr Phe
 180 185 190

Leu Met Ser Ser Phe Thr Phe Cys Gly Ser Phe Thr Gly Trp Lys Arg
 195 200 205

His Gly Ala His Ile Tyr Leu Thr Met Leu Leu Ser Ile Ala Ile Trp
 210 215 220

Val Ala Trp Ile Thr Leu Leu Met Leu Pro Asp Phe Asp Arg Arg Trp
 225 230 235 240

Asp Asp Thr Ile Leu Ser Ser Ala Leu Ala Ala Asn Gly Trp Val Phe
 245 250 255

Leu Leu Ala Tyr Val Ser Pro Glu Phe Trp Leu Leu Thr Lys Gln Arg
 260 265 270

Asn Pro Met Asp Tyr Pro Val Glu Asp Ala Phe Cys Lys Pro Gln Leu
 275 280 285

Val Lys Lys Ser Tyr Gly Val Glu Asn Arg Ala Tyr Ser Gln Glu Glu
 290 295 300

Ile Thr Gln Gly Phe Glu Glu Thr Gly Asp Thr Leu Tyr Ala Pro Tyr
 305 310 315 320

Ser Thr His Phe Gln Leu Gln Asn Gln Pro Pro Gln Lys Glu Phe Ser
 325 330 335

Ile Pro Arg Ala His Ala Trp Pro Ser Pro Tyr Lys Asp Tyr Glu Val
 340 345 350

Lys Lys Glu Gly Ser
 355

<210> 9
 <211> 357
 <212> PRT
 <213> Homo sapiens

<400> 9

Met Ala Thr Thr Val Pro Asp Gly Cys Arg Asn Gly Leu Lys Ser Lys
 1 5 10 15

Tyr Tyr Arg Leu Cys Asp Lys Ala Glu Ala Trp Gly Ile Val Leu Glu
 20 25 30

Thr Val Ala Thr Ala Gly Val Val Thr Ser Val Ala Phe Met Leu Thr
 35 40 45

Leu Pro Ile Leu Val Cys Lys Val Gln Asp Ser Asn Arg Arg Lys Met
 50 55 60

Leu Pro Thr Gln Phe Leu Phe Leu Leu Gly Val Leu Gly Ile Phe Gly
 65 70 75 80

Leu Thr Phe Ala Phe Ile Ile Gly Leu Asp Gly Ser Thr Gly Pro Thr
 85 90 95

Arg Phe Phe Leu Phe Gly Ile Leu Phe Ser Ile Cys Phe Ser Cys Leu
 100 105 110

Leu Ala His Ala Val Ser Leu Thr Lys Leu Val Arg Gly Arg Lys Pro
 115 120 125

Leu Ser Leu Leu Val Ile Leu Gly Leu Ala Val Gly Phe Ser Leu Val
 130 135 140

Gln Asp Val Ile Ala Ile Glu Tyr Ile Val Leu Thr Met Asn Arg Thr
 145 150 155 160

Asn Val Asn Val Phe Ser Glu Leu Ser Ala Pro Arg Arg Asn Glu Asp
 165 170 175

Phe Val Leu Leu Leu Thr Tyr Val Leu Phe Leu Met Ala Leu Thr Phe
 180 185 190

Leu Met Ser Ser Phe Thr Phe Cys Gly Ser Phe Thr Gly Trp Lys Arg

195	200	205
His Gly Ala His Ile Tyr Leu Thr Met Leu Leu Ser Ile Ala Ile Trp 210 215 220		
Val Ala Trp Ile Thr Leu Leu Met Leu Pro Asp Phe Asp Arg Arg Trp 225 230 235 240		
Asp Asp Thr Ile Leu Ser Ser Ala Leu Ala Ala Asn Gly Trp Val Phe 245 250 255		
Leu Leu Ala Tyr Val Ser Pro Glu Phe Trp Leu Leu Thr Lys Gln Arg 260 265 270		
Asn Pro Met Asp Tyr Pro Val Glu Asp Ala Phe Cys Lys Pro Gln Leu 275 280 285		
Val Lys Lys Ser Tyr Gly Val Glu Asn Arg Ala Tyr Ser Gln Glu Glu 290 295 300		
Ile Thr Arg Gly Phe Glu Glu Thr Gly Asp Thr Leu Tyr Ala Pro Tyr 305 310 315 320		
Ser Thr His Phe Gln Leu Gln Asn Gln Pro Pro Gln Lys Glu Phe Ser 325 330 335		
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Lys Lys Glu Gly Ser 355		

<210> 10
 <211> 59
 <212> PRT
 <213> Mus musculus

<400> 10

Asp Gly Ala Thr Gly Pro Thr Arg Phe Phe Leu Phe Gly Val Leu Phe 1 5 10 15
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Ala Ile Cys Phe Ser Cys Leu Leu Ala His Ala Phe Asn Leu Ile Lys 20 25 30

Leu Val Arg Gly Arg Lys Pro Leu Ser Trp Leu Val Ile Leu Ser Leu
 35 40 45

Ala Val Gly Phe Ser Leu Val Gln Asp Val Ile
 50 55

<210> 11
 <211> 59
 <212> PRT
 <213> Rattus norvetigus

<400> 11

Asp Arg Ala Thr Gly Pro Thr Arg Phe Phe Leu Phe Gly Val Leu Phe
 1 5 10 15

Ala Leu Cys Phe Ser Cys Leu Leu Ala His Ala Phe Asn Leu Ile Lys
 20 25 30

Leu Val Arg Gly Arg Lys Pro Leu Ser Trp Leu Val Ile Leu Ser Leu
 35 40 45

Ala Val Gly Phe Ser Leu Val Gln Asp Val Ile
 50 55

<210> 12
 <211> 59
 <212> PRT
 <213> Bos taurus

<400> 12

Asn Gly Gly Thr Gly Pro Thr Arg Phe Phe Leu Phe Gly Val Leu Phe
 1 5 10 15

Ala Leu Cys Phe Ser Cys Leu Leu Val His Ala Phe Asn Leu Thr Lys
 20 25 30

Leu Val Arg Gly Arg Gln Pro Leu Ser Met Leu Val Met Leu Gly Leu
 35 40 45

Ala Leu Gly Phe Ser Leu Val Gln Asp Ile Ile
 50 55

<210> 13
 <211> 59

<212> PRT
<213> Homo sapiens

<400> 13

Asp Gly Ser Thr Gly Pro Thr Arg Phe Phe Leu Phe Gly Ile Leu Phe
1 5 10 15

Ser Ile Cys Phe Ser Cys Leu Leu Ala His Ala Val Gly Leu Thr Lys
20 25 30

Leu Val Arg Gly Arg Lys Pro Leu Ser Leu Leu Val Ile Leu Gly Leu
35 40 45

Ala Val Gly Phe Ser Leu Val Gln Asp Val Ile
50 55

<210> 14
<211> 54
<212> PRT
<213> Homo sapiens

<400> 14

Glu Ile Thr Gln Gly Phe Glu Glu Thr Gly Asp Thr Leu Tyr Ala Pro
1 5 10 15

Tyr Ser Thr His Phe Gln Leu Gln Asn Gln Pro Pro Gln Lys Glu Phe
20 25 30

Ser Ile Pro Arg Ala His Ala Trp Pro Ser Pro Tyr Lys Asp Tyr Glu
35 40 45

Val Lys Lys Glu Gly Ser
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<210> 15
<211> 54
<212> PRT
<213> Homo sapiens

<400> 15

Glu Ile Thr Arg Gly Phe Glu Glu Thr Gly Asp Thr Leu Tyr Ala Pro
1 5 10 15

Tyr Ser Thr His Phe Gln Leu Gln Asn Gln Pro Pro Gln Lys Glu Phe
20 25 30

Ser Ile Pro Arg Ala His Ala Trp Pro Ser Pro Tyr Lys Asp Tyr Glu
 35 40 45

Val Lys Lys Glu Gly Ser
 50

<210> 16
 <211> 51
 <212> PRT
 <213> Mus musculus

<400> 16

Glu Ile Thr Gln Gly Leu Glu Met Gly Asp Thr Leu Tyr Ala Pro Tyr
 1 5 10 15

Ser Thr His Phe Gln Leu Gln Asn His Gln Lys Asp Phe Ser Ile Pro
 20 25 30

Arg Ala Gln Ala Pro Ala Ser Pro Tyr Asn Asp Tyr Glu Gly Arg Lys
 35 40 45

Gly Asp Ser
 50

<210> 17
 <211> 357
 <212> PRT
 <213> Homo sapiens

<400> 17

Met Ala Thr Thr Val Pro Asp Gly Cys Arg Asn Gly Leu Lys Ser Lys
 1 5 10 15

Tyr Tyr Arg Leu Cys Asp Lys Ala Glu Ala Trp Gly Ile Val Leu Glu
 20 25 30

Thr Val Ala Thr Ala Gly Val Val Thr Ser Val Ala Phe Met Leu Thr
 35 40 45

Leu Pro Ile Leu Val Cys Lys Val Gln Asp Ser Asn Arg Arg Lys Met
 50 55 60

Leu Pro Thr Gln Phe Leu Phe Leu Leu Gly Val Leu Gly Ile Phe Gly

65					70						75					80
Leu	Thr	Phe	Ala	Phe	Ile	Ile	Gly	Leu	Asp	Gly	Ser	Thr	Gly	Pro	Thr	
				85					90					95		
Arg	Phe	Phe	Leu	Phe	Gly	Ile	Leu	Phe	Ser	Ile	Cys	Phe	Ser	Cys	Leu	
			100					105					110			
Leu	Ala	His	Ala	Val	Ser	Leu	Thr	Lys	Leu	Val	Arg	Gly	Arg	Lys	Pro	
		115					120					125				
Leu	Ser	Leu	Leu	Val	Ile	Leu	Gly	Leu	Ala	Val	Gly	Phe	Ser	Leu	Val	
	130					135					140					
Gln	Asp	Val	Ile	Ala	Ile	Glu	Tyr	Ile	Val	Leu	Thr	Met	Asn	Arg	Thr	
145					150					155					160	
Asn	Val	Asn	Val	Phe	Ser	Glu	Leu	Ser	Ala	Pro	Arg	Arg	Asn	Glu	Asp	
				165					170					175		
Phe	Val	Leu	Leu	Leu	Ala	Tyr	Val	Leu	Phe	Leu	Met	Ala	Leu	Thr	Phe	
		180						185					190			
Leu	Met	Ser	Ser	Phe	Thr	Phe	Cys	Gly	Ser	Phe	Thr	Gly	Trp	Lys	Arg	
	195						200					205				
His	Gly	Ala	His	Ile	Tyr	Leu	Thr	Met	Leu	Leu	Ser	Ile	Ala	Ile	Trp	
	210					215					220					
Val	Ala	Trp	Ile	Thr	Leu	Leu	Met	Leu	Pro	Asp	Phe	Asp	Arg	Arg	Trp	
225					230					235					240	
Asp	Asp	Thr	Ile	Leu	Ser	Ser	Ala	Leu	Ala	Ala	Asn	Gly	Trp	Val	Phe	
				245				250						255		
Leu	Leu	Ala	Tyr	Val	Ser	Pro	Glu	Phe	Trp	Leu	Leu	Thr	Lys	Gln	Arg	
		260						265					270			
Asn	Pro	Met	Asp	Tyr	Pro	Val	Glu	Asp	Ala	Phe	Cys	Lys	Pro	Gln	Leu	
		275					280					285				
Val	Lys	Lys	Ser	Tyr	Gly	Val	Glu	Asn	Arg	Ala	Tyr	Ser	Gln	Glu	Glu	
	290					295					300					

Ile Thr Gln Gly Phe Glu Glu Thr Gly Asp Thr Leu Tyr Ala Pro Tyr
 305 310 315 320

Ser Thr His Phe Gln Leu Gln Asn Gln Pro Pro Gln Lys Glu Phe Ser
 325 330 335

Ile Pro Arg Ala His Ala Trp Pro Ser Pro Tyr Lys Asp Tyr Glu Val
 340 345 350

Lys Lys Glu Gly Ser
 355

<210> 18
 <211> 2456
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> RAI3 Polymorphic Allele Summary Sequence.

<220>
 <221> misc_feature
 <222> (112)..(112)
 <223> wherein "n" equals either G or A.

<220>
 <221> misc_feature
 <222> (364)..(364)
 <223> wherein "n" equals either C or T.

<220>
 <221> misc_feature
 <222> (511)..(511)
 <223> wherein "n" equals either C or T.

<220>
 <221> misc_feature
 <222> (523)..(523)
 <223> wherein "n" equals either C or T.

<220>
 <221> misc_feature
 <222> (605)..(605)
 <223> wherein "n" equals either A or G.

<220>
 <221> misc_feature
 <222> (797)..(797)
 <223> wherein "n" equals either A or G.

<220>
 <221> misc_feature
 <222> (1111)..(1111)
 <223> wherein "n" equals either T or C.

<220>
 <221> misc_feature
 <222> (1173)..(1173)
 <223> wherein "n" equals either A or G.

<400> 18
 ataacagcat gaagtgccgt ggaactggaa taggcgtgtc ctctccctcg accctccccc 60
 tccttgtccc tctgtcacc cctcgctcgt tccctccctc cggcgagggc cncctttata 120
 acaactgctc agagtgcgag ggcgggatag ctgtccaagg tctccccag cactgaggag 180
 ctgcctgct gccctcttgc gcgcgggaag cagcaccaag ttcacggcca acgccttggc 240
 actaggggtcc agaatggcta caacagtccc tgatggttgc cgcaatggcc tgaaatccaa 300
 gtactacaga ctttgtgata aggtgaagc ttggggcatc gtcctagaaa cgggtggccac 360
 agcnggggtt gtgacctcgg tggccttcat gctcactctc ccgacctcgt tctgcaaggt 420
 gcaggactcc aacaggcgaa aaatgctgcc tactcagttt ctcttccctc tgggtgtggt 480
 gggcatcttt ggccctacct tcgccttcat natcggactg gangggagca cagggcccac 540
 acgcttcttc ctctttggga tctcttttc catctgcttc tctgcctgc tggctcatgc 600
 tgtcngtctg accaagctcg tccgggggag gaagccctt tccctgttgg tgattctggg 660
 tctggcgtg ggettcagcc tagtccagga tggtatcgt attgaatata ttgtcctgac 720
 catgaatagg accaacgtca atgtcttttc tgagctttcc gctcctcgtc gcaatgaaga 780
 ctttgtctc ctgctcncct acgtcctctt cttgatggcg ctgaccttcc tcatgtctc 840
 cttcaccttc tgtggttct tcaagggtg gaagagacat ggggccaca tctacctcac 900
 gatgtcctc tccattgcca tctgggtggc ctggatcacc ctgctcatgc ttctgactt 960
 tgaccgcagg tgggatgaca ccatactcag ctccgccttg gctgccaatg gctgggtggt 1020
 cctgttggct tatgttagtc ccgagttttg gctgctcaca aagcaacgaa accccatgga 1080
 ttatcctgtt gaggatgctt tctgtaaacc ncaactcgtg aagaagagct atgggtgtgga 1140
 gaacagagcc tactctcaag aggaaatcac tcnaggtttt gaagagacag gggacacgct 1200
 ctatgcccc tattccacac attttcagct gcagaaccag cctccccaaa aggaattctc 1260
 catcccacgg gccacgctt ggccgagccc ttacaaagac tatgaagtaa agaaagaggg 1320
 cagctaactc tgtcctgaag agtgggacaa atgcagccgg gcggcagatc tagcgggagc 1380

tcaaagggat gtgggcgaaa tcttgagtct tctgagaaaa ctgtacaaga cactacggga	1440
acagtttgcc tccctcccag cctcaaccac aattcttcca tgctggggct gatgtgggct	1500
agtaagactc cagttcttag aggcgctgta gtattttttt ttttttgtct catcctttgg	1560
atacttcttt taagtgggag tctcaggcaa ctcaagttta gacccttact ctttttgttt	1620
gttttttgaa acaggatctt gctctgtcac ccaggcttga gtgcagtggg gcgatcacag	1680
cccagtgcag cctcgaccac ctgtgctcaa gcaatcctcc catctccatc tcccaaagtg	1740
ctgggatgac aggcgtgagc cacagctccc agcctaggcc cttaatcttg ctgttatttt	1800
ccatggacta aaggctctgg catctgagct cacgctggct cacacagctc taggggcctg	1860
ctcctctaac tcacagtggg ttttgtgagg ctctgtggcc cagagcagac ctgcatactc	1920
gagcaaaaat agcaaaagcc tctctcagcc cactggcctg aatctacact ggaagccaac	1980
ttgctggcac ccccgctccc caacccttct tgcttgggta ggagaggcta aagatcacc	2040
taaatttact catctctcta gtgctgcctc acattgggcc tcagcagctc cccagcacca	2100
attcacaggt caccctctc ttcttgcaact gtccccaac ttgctgtcaa ttccgagatc	2160
taatctccc ctacgctctg ccaggaattc ttccagacct cactagcaca agcccgggtg	2220
ctccttgtea ggagaatttg tagatcattc tcaactcaaa ttcttggggc tgatacttct	2280
ctcatcttgc accccaacct ctgtaaatag atttaccgca ttacggctg cattctgtaa	2340
gtgggcatgg tctcctaata gaggagtgtt cattgtataa taagttattc acctgagtat	2400
gcaataaaga tgtggtggcc actctttcat ggtggtggca gcaaaaaaaaa aaaaaa	2456

<210> 19
 <211> 357
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> RAI3 Polymorphic Allele Summary Sequence.

<220>
 <221> MISC_FEATURE
 <222> (118)..(118)
 <223> wherein "Xaa" equals either 'Ser' or 'Gly'.

<220>
 <221> MISC_FEATURE
 <222> (182)..(182)
 <223> wherein "Xaa" equals either 'Thr' or 'Ala'.

<220>

<221> MISC_FEATURE

<222> (307)..(307)

<223> wherein "Xaa" equals either 'Gln' or 'Arg'.

<400> 19

Met Ala Thr Thr Val Pro Asp Gly Cys Arg Asn Gly Leu Lys Ser Lys
1 5 10 15

Tyr Tyr Arg Leu Cys Asp Lys Ala Glu Ala Trp Gly Ile Val Leu Glu
20 25 30

Thr Val Ala Thr Ala Gly Val Val Thr Ser Val Ala Phe Met Leu Thr
35 40 45

Leu Pro Ile Leu Val Cys Lys Val Gln Asp Ser Asn Arg Arg Lys Met
50 55 60

Leu Pro Thr Gln Phe Leu Phe Leu Leu Gly Val Leu Gly Ile Phe Gly
65 70 75 80

Leu Thr Phe Ala Phe Ile Ile Gly Leu Asp Gly Ser Thr Gly Pro Thr
85 90 95

Arg Phe Phe Leu Phe Gly Ile Leu Phe Ser Ile Cys Phe Ser Cys Leu
100 105 110

Leu Ala His Ala Val Xaa Leu Thr Lys Leu Val Arg Gly Arg Lys Pro
115 120 125

Leu Ser Leu Leu Val Ile Leu Gly Leu Ala Val Gly Phe Ser Leu Val
130 135 140

Gln Asp Val Ile Ala Ile Glu Tyr Ile Val Leu Thr Met Asn Arg Thr
145 150 155 160

Asn Val Asn Val Phe Ser Glu Leu Ser Ala Pro Arg Arg Asn Glu Asp
165 170 175

Phe Val Leu Leu Leu Xaa Tyr Val Leu Phe Leu Met Ala Leu Thr Phe
180 185 190

Leu Met Ser Ser Phe Thr Phe Cys Gly Ser Phe Thr Gly Trp Lys Arg
195 200 205

His Gly Ala His Ile Tyr Leu Thr Met Leu Leu Ser Ile Ala Ile Trp
 210 215 220

Val Ala Trp Ile Thr Leu Leu Met Leu Pro Asp Phe Asp Arg Arg Trp
 225 230 235 240

Asp Asp Thr Ile Leu Ser Ser Ala Leu Ala Ala Asn Gly Trp Val Phe
 245 250 255

Leu Leu Ala Tyr Val Ser Pro Glu Phe Trp Leu Leu Thr Lys Gln Arg
 260 265 270

Asn Pro Met Asp Tyr Pro Val Glu Asp Ala Phe Cys Lys Pro Gln Leu
 275 280 285

Val Lys Lys Ser Tyr Gly Val Glu Asn Arg Ala Tyr Ser Gln Glu Glu
 290 295 300

Ile Thr Xaa Gly Phe Glu Glu Thr Gly Asp Thr Leu Tyr Ala Pro Tyr
 305 310 315 320

Ser Thr His Phe Gln Leu Gln Asn Gln Pro Pro Gln Lys Glu Phe Ser
 325 330 335

Ile Pro Arg Ala His Ala Trp Pro Ser Pro Tyr Lys Asp Tyr Glu Val
 340 345 350

Lys Lys Glu Gly Ser
 355

<210> 20
 <211> 357
 <212> PRT
 <213> Homo sapiens

<400> 20

Met Ala Thr Thr Val Pro Asp Gly Cys Arg Asn Gly Leu Lys Ser Lys
 1 5 10 15

Tyr Tyr Arg Leu Cys Asp Lys Ala Glu Ala Trp Gly Ile Val Leu Glu
 20 25 30

Thr Val Ala Thr Ala Gly Val Val Thr Ser Val Ala Phe Met Leu Thr

35

40

45

Leu Pro Ile Leu Val Cys Lys Val Gln Asp Ser Asn Arg Arg Lys Met
 50 55 60

Leu Pro Thr Gln Phe Leu Phe Leu Leu Gly Val Leu Gly Ile Phe Gly
 65 70 75 80

Leu Thr Phe Ala Phe Ile Ile Gly Leu Asp Gly Ser Thr Gly Pro Thr
 85 90 95

Arg Phe Phe Leu Phe Gly Ile Leu Phe Ser Ile Cys Phe Ser Cys Leu
 100 105 110

Leu Ala His Ala Val Ser Leu Thr Lys Leu Val Arg Gly Arg Lys Pro
 115 120 125

Leu Ser Leu Leu Val Ile Leu Gly Leu Ala Val Gly Phe Ser Leu Val
 130 135 140

Gln Asp Val Ile Ala Ile Glu Tyr Ile Val Leu Thr Met Asn Arg Thr
 145 150 155 160

Asn Val Asn Val Phe Ser Glu Leu Ser Ala Pro Arg Arg Asn Glu Asp
 165 170 175

Phe Val Leu Leu Leu Thr Tyr Val Leu Phe Leu Met Ala Leu Thr Phe
 180 185 190

Leu Met Ser Ser Phe Thr Phe Cys Gly Ser Phe Thr Gly Trp Lys Arg
 195 200 205

His Gly Ala His Ile Tyr Leu Thr Met Leu Leu Ser Ile Ala Ile Trp
 210 215 220

Val Ala Trp Ile Thr Leu Leu Met Leu Pro Asp Phe Asp Arg Arg Trp
 225 230 235 240

Asp Asp Thr Ile Leu Ser Ser Ala Leu Ala Ala Asn Gly Trp Val Phe
 245 250 255

Leu Leu Ala Tyr Val Ser Pro Glu Phe Trp Leu Leu Thr Lys Gln Arg
 260 265 270

Asn Pro Met Asp Tyr Pro Val Glu Asp Ala Phe Cys Lys Pro Gln Leu
 275 280 285

Val Lys Lys Ser Tyr Gly Val Glu Asn Arg Ala Tyr Ser Gln Glu Glu
 290 295 300

Ile Thr Gln Gly Phe Glu Glu Thr Gly Asp Thr Leu Tyr Ala Pro Tyr
 305 310 315 320

Ser Thr His Phe Gln Leu Gln Asn Gln Pro Pro Gln Lys Glu Phe Ser
 325 330 335

Ile Pro Arg Ala His Ala Trp Pro Ser Pro Tyr Lys Asp Tyr Glu Val
 340 345 350

Lys Lys Glu Gly Ser
 355

<210> 21
 <211> 357
 <212> PRT
 <213> Homo sapiens

<400> 21

Met Ala Thr Thr Val Pro Asp Gly Cys Arg Asn Gly Leu Lys Ser Lys
 1 5 10 15

Tyr Tyr Arg Leu Cys Asp Lys Ala Glu Ala Trp Gly Ile Val Leu Glu
 20 25 30

Thr Val Ala Thr Ala Gly Val Val Thr Ser Val Ala Phe Met Leu Thr
 35 40 45

Leu Pro Ile Leu Val Cys Lys Val Gln Asp Ser Asn Arg Arg Lys Met
 50 55 60

Leu Pro Thr Gln Phe Leu Phe Leu Leu Gly Val Leu Gly Ile Phe Gly
 65 70 75 80

Leu Thr Phe Ala Phe Ile Ile Gly Leu Asp Gly Ser Thr Gly Pro Thr
 85 90 95

Arg Phe Phe Leu Phe Gly Ile Leu Phe Ser Ile Cys Phe Ser Cys Leu
 100 105 110

Leu Ala His Ala Val Ser Leu Thr Lys Leu Val Arg Gly Arg Lys Pro
 115 120 125

Leu Ser Leu Leu Val Ile Leu Gly Leu Ala Val Gly Phe Ser Leu Val
 130 135 140

Gln Asp Val Ile Ala Ile Glu Tyr Ile Val Leu Thr Met Asn Arg Thr
 145 150 155 160

Asn Val Asn Val Phe Ser Glu Leu Ser Ala Pro Arg Arg Asn Glu Asp
 165 170 175

Phe Val Leu Leu Leu Thr Tyr Val Leu Phe Leu Met Ala Leu Thr Phe
 180 185 190

Leu Met Ser Ser Phe Thr Phe Cys Gly Ser Phe Thr Gly Trp Lys Arg
 195 200 205

His Gly Ala His Ile Tyr Leu Thr Met Leu Leu Ser Ile Ala Ile Trp
 210 215 220

Val Ala Trp Ile Thr Leu Leu Met Leu Pro Asp Phe Asp Arg Arg Trp
 225 230 235 240

Asp Asp Thr Ile Leu Ser Ser Ala Leu Ala Ala Asn Gly Trp Val Phe
 245 250 255

Leu Leu Ala Tyr Val Ser Pro Glu Phe Trp Leu Leu Thr Lys Gln Arg
 260 265 270

Asn Pro Met Asp Tyr Pro Val Glu Asp Ala Phe Cys Lys Pro Gln Leu
 275 280 285

Val Lys Lys Ser Tyr Gly Val Glu Asn Arg Ala Tyr Ser Gln Glu Glu
 290 295 300

Ile Thr Gln Gly Phe Glu Glu Thr Gly Asp Thr Leu Tyr Ala Pro Tyr
 305 310 315 320

Ser Thr His Phe Gln Leu Gln Asn Gln Pro Pro Gln Lys Glu Phe Ser

325	330	335
Ile Pro Arg Ala His Ala Trp Pro Ser Pro Tyr Lys Asp Tyr Glu Val		
340	345	350
Lys Lys Glu Gly Ser		
355		
<210> 22		
<211> 40		
<212> DNA		
<213> Homo sapiens		
<400> 22		
ctagaaacgg tggccacagc cggggttggtg acctcgggtgg		40
<210> 23		
<211> 40		
<212> DNA		
<213> Homo sapiens		
<400> 23		
ctagaaacgg tggccacagc tggggttggtg acctcgggtgg		40
<210> 24		
<211> 44		
<212> DNA		
<213> Homo sapiens		
<400> 24		
tgcttgctgg ctcatgctgt cagtctgacc aagctcgtcc gggg		44
<210> 25		
<211> 44		
<212> DNA		
<213> Homo sapiens		
<400> 25		
tgcttgctgg ctcatgctgt cggctctgacc aagctcgtcc gggg		44
<210> 26		
<211> 50		
<212> DNA		
<213> Homo sapiens		
<400> 26		
tcctgttgag gatgctttct gtaaacctca actcgtgaag aagagctatg		50
<210> 27		

<211> 50
 <212> DNA
 <213> Homo sapiens

 <400> 27
 tcctgttgag gatgctttct gtaaacccca actcgtgaag aagagctatg 50

 <210> 28
 <211> 40
 <212> DNA
 <213> Homo sapiens

 <400> 28
 tctcaagagg aaatcactca aggttttgaa gagacagggg 40

 <210> 29
 <211> 40
 <212> DNA
 <213> Homo sapiens

 <400> 29
 tctcaagagg aaatcactcg aggttttgaa gagacagggg 40

 <210> 30
 <211> 42
 <212> DNA
 <213> Homo sapiens

 <400> 30
 gccacgctt ggccgagccc ttacaaagac tatgaagtaa ag 42

 <210> 31
 <211> 17
 <212> DNA
 <213> Homo sapiens

 <400> 31
 gccacgctt ggccgag 17

 <210> 32
 <211> 19
 <212> DNA
 <213> Homo sapiens

 <400> 32
 ctttacttca tagtctttg 19

 <210> 33
 <211> 42
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate Oligonucleotide.

<220>
 <221> misc_feature
 <222> (3)..(39)
 <223> wherein "n" equals A, C, G, or T.

<220>
 <221> misc_feature
 <222> (6)..(33)
 <223> wherein "y" equals C, or T.

<220>
 <221> misc_feature
 <222> (27)..(42)
 <223> wherein "r" equals A, or G.

<400> 33
 gcncaygcnt ggcctcncnc ntayaargay taygargtna ar 42

<210> 34
 <211> 17
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate Oligonucleotide.

<220>
 <221> misc_feature
 <222> (3)..(15)
 <223> wherein "n" equals A, C, G, or T.

<220>
 <221> misc_feature
 <222> (6)..(6)
 <223> wherein "y" equals C, or T.

<400> 34
 gcncaygcnt ggcctnc 17

<210> 35
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Degenerate Oligonucleotide.

<220>

<221> misc_feature
 <222> (1)..(16)
 <223> wherein "y" equals C, or T.

<220>
 <221> misc_feature
 <222> (4)..(22)
 <223> wherein "n" equals A, C, G, or T.

<220>
 <221> misc_feature
 <222> (10)..(19)
 <223> wherein "r" equals A, or G.

<400> 35
 yttnac ytc tarc ytttrt ang 23

<210> 36
 <211> 38
 <212> DNA
 <213> Homo sapiens

<400> 36
 gcgcggccca attgcatggc tacaacagtc cctgatgg 38

<210> 37
 <211> 33
 <212> DNA
 <213> Homo sapiens

<400> 37
 gcggccctcg agttagctgc cctctttctt tac 33

<210> 38
 <211> 16
 <212> PRT
 <213> Homo sapiens

<400> 38

Met	Lys	Thr	Ile	Ile	Ala	Leu	Ser	Tyr	Ile	Phe	Cys	Leu	Val	Phe	Ala
1			5					10					15		

<210> 39
 <211> 11
 <212> PRT
 <213> Bacteriophage T7

<400> 39

Asp	Tyr	Lys	Asp	Asp	Asp	Asp	Ala	Arg	Asn	Ser
1			5					10		

<210> 40
<211> 27
<212> PRT
<213> Homo sapiens

<400> 40

Met Lys Thr Ile Ile Ala Leu Ser Tyr Ile Phe Cys Leu Val Phe Ala
1 5 10 15

Asp Tyr Lys Asp Asp Asp Asp Ala Arg Asn Ser
20 25

<210> 41
<211> 39
<212> DNA
<213> Homo sapiens

<400> 41

gcggccagat ctgccaccat ggctacaaca gtccttgat 39

<210> 42
<211> 60
<212> DNA
<213> Homo sapiens

<400> 42

gcggccctcg agctacttgt cgtcgtcgtc cttgtagtcc atgctgccct ctttctttac 60

<210> 43
<211> 9
<212> PRT
<213> Homo sapiens

<400> 43

Met Asp Tyr Lys Asp Asp Asp Asp Lys
1 5

<210> 44
<211> 55
<212> DNA
<213> Homo sapiens

<400> 44

cgggataccta cttgctgctg tcgtccttgt agtcgctgcc ctctttcttt acttc 55

<210> 45
<211> 21
<212> DNA

<213> Homo sapiens

<400> 45
ccacacattt tcagctgcag a 21

<210> 46
<211> 22
<212> DNA
<213> Homo sapiens

<400> 46
gtgggatgga gaattccttt tg 22

<210> 47
<211> 22
<212> DNA
<213> Homo sapiens

<400> 47
attccacaca ttttcagctg ca 22

<210> 48
<211> 21
<212> DNA
<213> Homo sapiens

<400> 48
ggatggagaa ttcttttgg g 21

<210> 49
<211> 25
<212> PRT
<213> Homo sapiens

<400> 49
Cys Leu Thr Met Asn Arg Thr Asn Val Asn Val Phe Ser Glu Leu Ser
1 5 10 15

Ala Pro Arg Arg Asn Glu Asp Phe Val
20 25

<210> 50
<211> 18
<212> PRT
<213> Homo sapiens

<400> 50
Cys Met Leu Pro Asp Phe Asp Arg Arg Trp Asp Asp Thr Thr Leu Ser
1 5 10 15

Ser Ala

<210> 51
<211> 21
<212> PRT
<213> Homo sapiens

<400> 51

Cys Lys Pro Gln Leu Val Lys Lys Ser Tyr Gly Val Asn Glu Arg Ala
1 5 10 15

Tyr Ser Gln Glu Glu
20

<210> 52
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized Antisense Oligonucleotide.

<400> 52
uuccaguucc acggcacuuc augcuu 26

<210> 53
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized Antisense Oligonucleotide.

<400> 53
guccaguccg augaugaagg cgaagu 26

<210> 54
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized Antisense Oligonucleotide.

<400> 54
caguuguuau aaaggcggcc cucgcu 26

<210> 55
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized Antisense Oligonucleotide.

 <400> 55
 uuguagccau ucuggacccu agugcu 26

<210> 56
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized Antisense Oligonucleotide.

 <400> 56
 ucuuccagcc cgugaaggaa ccacau 26

<210> 57
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized Antisense Oligonucleotide.

 <400> 57
 accuugaccu uauccgcaca ggagau 26

<210> 58
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized Antisense Oligonucleotide.

 <400> 58
 gagccucccc gggauauug uugacu 26

<210> 59
 <211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized Antisense Oligonucleotide.

 <400> 59

gcugauccca ggucuuaccg auguuu 26

<210> 60
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized Antisense Oligonucleotide.

<400> 60
acaccaagga agugcccgac cuucu 25

<210> 61
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthesized Antisense Oligonucleotide.

<400> 61
gacugaaacu ggcguccacc cuacuu 26

<210> 62
<211> 24
<212> DNA
<213> Homo sapiens

<400> 62
gaggatgagg agagctatga caca 24

<210> 63
<211> 22
<212> DNA
<213> Homo sapiens

<400> 63
ccctttgcac tcataacgtc ag 22

<210> 64
<211> 29
<212> DNA
<213> Homo sapiens

<400> 64
aaacacacag tcatcatagg gcagctcgt 29

<210> 65
<211> 41
<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (21)..(21)

<223> wherein "n" equals either C, or T.

<400> 65

ctgagcagtt gttataaagg nggccctcgc cggagggagg g

41

<210> 66

<211> 41

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (21)..(21)

<223> wherein "n" equals either T, or C.

<400> 66

gccccagcgc tctgggctcc nggcgcctca cttaccctag t

41

<210> 67

<211> 41

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (21)..(21)

<223> wherein "n" equals either G, or A.

<400> 67

gccaccgagg tcacaacccc ngctgtggcc accgtttcta g

41

<210> 68

<211> 41

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (21)..(21)

<223> wherein "n" equals either G, or A.

<400> 68

gtgctcccg t ccagtccgat natgaaggcg aaggtgaggc c

41

<210> 69
<211> 41
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (21)..(21)
<223> wherein "n" equals either G, or A.

<400> 69
cgtgtgggcc ctgtgctccc ntccagtcg atgatgaagg c

41

<210> 70
<211> 41
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (21)..(21)
<223> wherein "n" equals either T, or C.

<400> 70
catcaagaag aggacgtagg ngagcaggag gacaaagtct t

41

<210> 71
<211> 39
<212> DNA
<213> Homo sapiens

<400> 71
tgtaaaacga cggccagtgt cagacggttt ttgggtcat

39

<210> 72
<211> 39
<212> DNA
<213> Homo sapiens

<400> 72
tgtaaaacga cggccagtgt cagacggttt ttgggtcat

39

<210> 73
<211> 39
<212> DNA
<213> Homo sapiens

<400> 73
tgtaaaacga cggccagtaa taccttctcc ccactccaa

39

<210> 74
 <211> 39
 <212> DNA
 <213> Homo sapiens

 <400> 74
 tgtaaaacga cggccagtaa taccttctcc ccaactccaa 39

 <210> 75
 <211> 39
 <212> DNA
 <213> Homo sapiens

 <400> 75
 tgtaaaacga cggccagtaa taccttctcc ccaactccaa 39

 <210> 76
 <211> 39
 <212> DNA
 <213> Homo sapiens

 <400> 76
 tgtaaaacga cggccagtcc ttccctgtt ggtgattct 39

 <210> 77
 <211> 38
 <212> DNA
 <213> Homo sapiens

 <400> 77
 caggaaacag ctatgaccgc ctctcccag acgattta 38

 <210> 78
 <211> 38
 <212> DNA
 <213> Homo sapiens

 <400> 78
 caggaaacag ctatgaccgc ctctcccag acgattta 38

 <210> 79
 <211> 39
 <212> DNA
 <213> Homo sapiens

 <400> 79
 caggaaacag ctatgaccag atggaaaaga ggatccaa 39

 <210> 80
 <211> 39
 <212> DNA

<213> Homo sapiens
 <400> 80
 caggaaacag ctatgaccag atggaaaaga ggatcccaa 39

 <210> 81
 <211> 39
 <212> DNA
 <213> Homo sapiens
 <400> 81
 caggaaacag ctatgaccag atggaaaaga ggatcccaa 39

 <210> 82
 <211> 39
 <212> DNA
 <213> Homo sapiens
 <400> 82
 caggaaacag ctatgaccgc caaaactcgg gactaacat 39

 <210> 83
 <211> 18
 <212> DNA
 <213> Homo sapiens
 <400> 83
 tgtaaaacga cggccagt 18

 <210> 84
 <211> 18
 <212> DNA
 <213> Homo sapiens
 <400> 84
 caggaaacag ctatgacc 18

 <210> 85
 <211> 22
 <212> DNA
 <213> Homo sapiens
 <400> 85
 gcttcttcct ctttgggatc ct 22

 <210> 86
 <211> 23
 <212> DNA
 <213> Homo sapiens
 <400> 86

cttggtcaga ctgacagcat gag

23

<210> 87
<211> 25
<212> DNA
<213> Homo sapiens

<400> 87
ttccatctgc ttctcctgcc tgctg

25

<210> 88
<211> 59
<212> PRT
<213> Homo sapiens

<400> 88

Asn Gln Gln Thr Ala Pro Val Arg Tyr Phe Leu Phe Gly Val Leu Phe
1 5 10 15

Ala Leu Cys Phe Ser Cys Leu Leu Ala His Ala Ser Asn Leu Val Lys
20 25 30

Leu Val Arg Gly Cys Val Ser Phe Ser Trp Thr Thr Ile Leu Cys Ile
35 40 45

Ala Ile Gly Cys Ser Leu Leu Gln Ile Ile Ile
50 55

<210> 89
<211> 59
<212> PRT
<213> Mus musculus

<400> 89

Asn His Gln Thr Ala Pro Val Arg Tyr Phe Leu Phe Gly Val Leu Phe
1 5 10 15

Ala Ile Cys Phe Ser Cys Leu Leu Ala His Ala Ser Asn Leu Val Lys
20 25 30

Leu Val Arg Gly Arg Val Ser Phe Cys Trp Thr Thr Ile Leu Phe Ile
35 40 45

Ala Ile Gly Val Ser Leu Leu Gln Thr Ile Ile
50 55

<210> 90
 <211> 46
 <212> PRT
 <213> Homo sapiens

<400> 90

Arg Asp Ser Asp Gly Ala Glu Glu Asp Val Ala Leu Thr Ser Tyr Gly
 1 5 10 15

Thr Pro Ile Gln Pro Gln Thr Val Asp Pro Thr Gln Glu Cys Phe Ile
 20 25 30

Pro Gln Ala Lys Leu Ser Pro Gln Gln Asp Ala Gly Gly Val
 35 40 45

<210> 91
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthesized Polypeptide.

<400> 91

Asp Gly Ser Thr Gly Pro Thr Arg Phe Phe Leu Phe Gly Ile Leu
 1 5 10 15

<210> 92
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Synthesized Polypeptide.

<400> 92

Thr Lys Gln Arg Asn Pro Met Asp Tyr Pro Val Glu Asp Ala Phe Cys
 1 5 10 15

<210> 93
 <211> 21
 <212> DNA
 <213> Homo sapiens

<400> 93
 aaggtgcagg actccaacag g

21

<210> 94
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized Oligonucleotide.

 <400> 94
 ggugcaggac uccaacaggt t 21

<210> 95
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized Oligonucleotide.

 <400> 95
 ccuguuggag uccugcacct t 21

<210> 96
 <211> 23
 <212> DNA
 <213> Homo sapiens

 <400> 96
 aattctccga acgtgtcacg ttt 23

<210> 97
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized Oligonucleotide.

 <400> 97
 uucuccgaac gugucacguu utt 23

<210> 98
 <211> 21
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthesized Oligonucleotide.

 <400> 98
 aaacgugaca cguucggagt t 21